

REMARKS

Applicants' invention implements a multiple-mapping operation, in which a destination channel, or program, to which an original channel (or program) is mapped, is further mapped to a third channel.

Thus, the invention substitutes (for a period of time) a program or a channel from a first mapping to a second mapping.

This feature is illustrated in Fig. 7 wherein, for example, a program P j-2 which is mapped for a particular period (e.g., from 7:00 to 9:00) to a channel j is mapped as a program P l-2 to channel 1 during the period from 7:00 to 9:00 , while a portion of program P l-2 is mapped to a program P 4-3 on channel 4 during a period from 8:35 to 8:50.

Such mapping is implemented by incorporating particular information in the PSI (program specific information) of a program information record, and by implementing particular operations in accordance therewith, as recited in applicants' claims.

In the pending Official Action, the Examiner rejects each of applicants' claims under 35 USC 103 over Arsenault et al., USP 5,886,995 (hereinafter '995).

Applicants respectfully traverse the rejection and request reconsideration for the following reasons.

It is respectfully submitted that the above described multiple mapping is neither disclosed nor implemented in the Arsenault et al. '995 reference, the Examiner's assertions to the contrary notwithstanding.

Firstly, it is a main object of the '995 reference to provide a transmission distribution system which, for broadcast resources necessary for broadcasting, saves, or conserves, as many broadcast resources as possible by consolidating the broadcast of simultaneous common programming from a number of different program streams comprising a number of input data streams, onto a lesser number of broadcast resources. In the '995 reference such consolidation is attained by using a specific, unique, mapping scheme which utilizes the saved broadcast resources for broadcasting other programming.

This concept, objective and implementation is repeatedly described throughout the document (see e.g., col. 5 lines 27-33). On the other hand, an object of Applicants' invention is to provide a digital broadcasting system that utilizes virtual channels, interchangeable at any desired time mainly for a broadcaster's conveniences. In this way, though both the Applicants' invention and the '995 reference relate to a digital broadcasting system that uses a mapping technique, they differ from each other both in the objects and implementation thereof.

Since Applicants' invention is neither intended nor utilized for saving broadcast resources, if we assume that INPUT DATA STREAMS 20 of the '995 reference's FIG. 4 are input from program source devices 10 in FIG. 1 of the Applicants' invention, then the common data streams for each of the simultaneous common programs A, C and G are multiplexed and transmitted simultaneously by unit 40. In fact, the program source devices 10 are so prepared as to include as few simultaneous common programs as possible.

In addition to the above difference in objective, the mapping schemes of Applicants' invention and the '995 reference are fundamentally different, as follows.

The '995 reference considers the broadcast channels to be "broadcast resources" and carries out a remote mapping and a local mapping in both of the broadcasting station (or uplink facilities 10) and receiving stations 12, respectively, in order to save broadcast resources (or conserve transmission bandwidth with fewer broadcast resources).

That is, the '995 reference correlates the upstream channels with the downstream channels **both** at the junction of the INPUT DATA STREAMS and the broadcast resources **and** at the junction of the broadcast resources and the OUTPUT DATA STREAMS (the correlating being called "mapping"). In this sense, the mapping scheme of the '995 reference can be called a "two-stage mapping".

A remote map 30 and a local map 40 that define the remote mapping at the broadcast station 10 and the local mapping at the receiving stations, respectively, have the form of an allocation or look-up table or map as shown in FIG. 5 of the '995 reference. It is seen from the above description that the input data streams IN1-INn, the broadcast resources (BRs) and the output data streams OUT(1)-OUT(n+2) are usually different in number from one another, as clearly shown in FIG. 4 of the '995 reference.

On the other hand, instead of considering the data streams to be dividable into the input data streams IN1-INn, the BR stream and the output data streams OUT(1)-OUT(n+2), Applicants' invention considers that the program data flow through the channels (physical and virtual channels) that consistently lead from broadcast station 1 to receiving stations 6.

This feature is now clearly recited in new claims 10-13.

Thus, the programs actually transmitted through the physical channels and the programs virtually transmitted through the virtual channels are described in respective program information records 300 in an identical manner as shown in FIG. 3 in Applicants' specification.

Instead of mapping the upstream channels to the down stream channels by using an allocation table such as provided in FIG. 5 of the '995 reference, the present invention achieves a *mapping by designating a destination channel or program ID in channel mapping info 335* of the program information record 300 of the source channel or program, enabling a frequent transmission of mapping information. In this way, a mapping is done simply between two of the channels regardless of whether the two channels are virtual or physical ones (instead of between the upstream channels and the downstream channels.) Thus, *both* the basic concept of mapping *and* the way of defining each mapping are clearly different in Applicants' invention and the '995 reference.

This aspect of Applicants' invention is clearly recited in the independent claims, which require storage of a program information record including PSI (program specific information) which may include *channel mapping information* identifying a *different program or channel to be received*. The Examiner's attention is directed to the recitation in claim 1, lines 12-13; claim 4, lines 10-12; claim 7, lines 9-11 and claim 8, lines 12-13.

That is, Applicants' invention generates mapping information through a combination of:

- a) means for (or the step of) storing, for each of programs of each of said channels available to said users, a program information record comprising PSI (program specific information), and
- b) means for (or the step of) permitting the broadcaster to include, in said PSI, channel mapping information whose mapping destination is a program to be received instead of a program for which said program information record is intended or a channel through which said program to be received is transmitted.

Also, the form of the generated mapping information is different from either the remote map 30 or the local map 40 of the '995 reference, i.e., a lookup table.

It is respectfully submitted that the combination of means (or steps) a) and b) is neither disclosed nor suggested in or by any portion of the '995 reference. Still more particularly, means or step b) is not found or suggested anywhere in or by the '995 reference.

Therefore, it is courteously submitted that the Examiner's applications of the '995 reference to the recitations of means (or steps) a) and b) in claims 1, 4, 7 and 8 is in error and that reconsideration of the same is clearly in order.

Moreover, since Applicants' invention defines a mapping by inserting a mapping destination ID in channel mapping information 335 included in the PSI 330 as shown in FIG. 3, it is possible to include, in the channel mapping info 335 field of the program information record 300 of the program that is the destination of a certain mapping, other mapping information. I.e., the invention makes possible the occurrence of a chain of two or more mappings. What resolves such a mapping chain is

- c) means (or the step), responsive to a determination that PSI data for said program to be received includes channel mapping information indicative of a third program or channel to be received, for (or of) ***changing said channel mapping information*** such that the mapping destination of said channel mapping information is said third program or channel.

Such a recitation is found at the fourth paragraph of claim 1 and the third paragraph of claim 4, for example.

Addressing the features of means or step c), the Examiner contends that means c) is met by some of the elements of the '995 reference by citing various sentence segments, while neglecting the context of each segment.

It is noted that a reference must be considered in its entirety, and an Examiner is not free to pick and choose arbitrary portions thereof in a hindsight attempt to reconstruct a claimed invention.

Specifically, the Examiner contends that "Arsenault et al. discloses the map generator 19 (fig. 1) which determines when changes to both the remote (transmission) and local (receiver) maps are appropriate, and generates data necessary for updating the maps. (Col. 11, lines 25-52). Arsenault discloses dynamic mapping technique that 'generates data necessary for updating the maps' in real-time (Col. 11, lines 25-52)."

However, upon considering the reference in its entirety, it is clear that the underlined portions referenced in the Action in fact disclose that the map generator 19 monitors the input data streams to see if any duplication occurs in two or more input data streams and, if so, the map generator 19 automatically updates the remote map 30 so as to resolve the duplication and also updates the local map 40 so as to at least restore the same data stream as the input data stream.

That is, the underlined portions in the above quotations in fact teach that dynamic mapping is, and requires, the automatic generation of the remote 30 and local 40 maps through monitoring the input data stream.

It should thus be understood that the above-mentioned two-stage mapping of the '995 reference is thus clearly differentiated from the mapping chain of made possible by Applicants' invention.

The two concepts are distinct and should not be confused. Indeed, one of ordinary skill in the art would not confuse the two and would not find any implication in one technique (two-stage mapping using two different maps as in '995) suggesting a mapping chain implemented by the information structure recited by Applicants.

In the two-stage mapping, the upstream-to-downstream mapping takes place both at the broadcast station and at the receiving stations.

On the other hand, a mapping chain may occur in three or more channels at the receiving stations only. For example, a mapping chain occurs in three channels CHj, CH1 and CH4 during a time slot P4-3 in the accompanying marked ("REFERENCE") copy of Applicants' FIG.7, marked to show MP1, MP2 and MP3. For further details of the mapping chain, see p. 9, line 11 to p. 10, line 4 in Applicants' specification.

The Examiner also contends at page 3 of the Action that "Arsenault discloses that during one time slot...to alternate Bitstreams. A viewer who wishes to watch a program scheduled to be carried by a particular network should have that program available to them when they tune to that network, even if that program is duplicative of similar

programs being simultaneously carried on other networks. Thus, multiple mapping is suggested in the system of Arsenault et al. (See col. 16, lines 9-67).”

However, the first and second underlined portions in fact are unrelated, and have two different meanings.

The first underlined portion (which has been modified by the Examiner and appears to be derived from lines 21-24 of col. 16) means that the remote mapping may free some broadcast resources, which can thus be utilized for the broadcasting of additional programs, as is clear from lines 27-33 of Col. 16.

The second underlined portion suggests the necessity of the local mapping in order to provide the output data stream according to the predetermined program schedule for subscribers' convenience.

This is clear in the disclosure at Col. 16, lines 51-53, which discloses that to the extent the remote map 30 may have omitted several duplicative channels, local map 40 effectively reinstates the same so that the user does not have to search for a program broadcast on several different channels, all but one of which have been (effectively) removed by map 30, since a complementary operation by map 40 (effectively) restores the same.

Such complementary operations have nothing to do with chained mapping as provided by Applicants' claims.

Indeed, although it is not clear what the Examiner means by “multiple mapping”, *if* “multiple mapping” means the two-stage mapping, *then* the mapping chain that may be implemented in Applicants' invention has nothing to do with the multiple mapping.

It is accordingly submitted that one of ordinary skill in the art would neither have learned Applicants' claimed invention from, nor would have been motivated by the '995 reference to implement Applicants' claimed invention. Thus, the rejection of claims 1 and 4 over the '995 reference under 35 USC 103 is improper, as a *prima facie* showing of obviousness has not been made.

Addressing now the rejection of claim 7, applicants further submit as follows.

As hereinabove described, neither the step b) nor the combination of steps a) and b) is disclosed in or suggested by the '995 reference.

Moreover, the portions quoted at page 6 of the Action, that

“certain broadcast resources during certain time slots’ are freed ‘providing additional bandwidth which can then be used for transmission of alternate Bitstreams such as programming 71’” and that “The remote map 30 is modified at the beginning of TS_sub_1 to **map an alternative Bitstream, BS_sub_1**, onto broadcast resource BR_sub_2 during TS_sub_1”

again only mean that the saved broadcast resource can be used for **an alternative bitstream**.

However, the recitation at claim 7: “the step of, in the event one of the currently broadcast programs reaches a climax, including channel mapping information whose mapping destination is said one of the currently broadcast programs or a channel transmitting said one of the currently broadcast programs” clearly inserts channel mapping information whose “mapping destination is said one of the currently broadcast programs” -- i.e., the program that reaches a climax, is inserted in the PSI for a program

said broadcaster desires to be received. In other words, claim 7 maps a desired program to the program reaching a climax.

It is clear that such a technique is neither suggested nor disclosed in any part of the '995 reference, and that reconsideration and withdrawal of the rejection of claim 7 is in order.

As for the rejection of claim 8, applicants submit as follows.

First, the Examiner admits at page 7 of the Action that the '995 reference fails to disclose a) the step of "assigning sequential channel IDs to the channels available to the users, permitting a plurality of channel IDs to be assigned to a virtual channel comprising said sequence of programs such that said virtual channel appears repeatedly in a relatively short period when said channels available to the users are swept by the users".

However, the Examiner takes Official Notice that this feature is well known in the art.

MPEP 2144.03 provides that an Examiner may take Official Notice of Common Knowledge in the Art or "Well Known" Prior Art. However, the Manual clearly provides that

If the applicant traverses such an assertion the examiner should cite a reference in support of his or her position.

When a rejection is based on facts within the personal knowledge of the examiner, the data should be stated as specifically as possible, and the facts must be supported, when called for by the applicant, by an affidavit from the examiner. Such an affidavit is subject to contradiction or

explanation by the affidavits of the applicant and other persons. See 37 CFR 1.104(d)(2).

Applicants courteously traverse the Examiner's assertion. Having challenged taking of Official Notice, the Examiner should either provide a reference disclosing the same or provide his affidavit that, based on personal knowledge subject to contradiction, the Officially Noted portion is known in the art.

It is further submitted that, in the assertions made at page 7 of the Action, the Examiner has completely neglected the underlined portion of claim 8, requiring "that said virtual channel appears repeatedly in a relatively short period...."

Claim 8 makes it possible to let the users watching a certain virtual channel view one or more specific commercials or programs when the user scans the channels near the virtual channel.

The technique of this step a) (or of claim 8) is neither disclosed in nor suggested by any part of the '995 reference.

Accordingly, reconsideration and withdrawal of the rejection of claim 8 is in order and the same is respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. In order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, the Examiner is respectfully requested to contact the

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undersigned by telephone at the below listed local telephone number if any further comments, questions or suggestions arise in connection with the application.

Respectfully submitted,
CLARK & BRODY



Israel Gopstein
Registration No. 27,333

1750 K Street, N.W. Suite 600
Washington, D.C. 20006
Date: June 12, 2001

(202) 835-1111
(202) 835-1755 (fax)

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ISRAEL GOPSTEIN

REG. NO. 27,333